WHAT IS CLAIMED IS:

1. A vacuum apparatus comprising:

a process chamber for processing for a work-piece; and

a transfer chamber connected to the process chamber via a gate valve for accommodating a transfer apparatus to an inside thereof, wherein

the transfer apparatus comprises:

a tape provided with a work-piece holder hand in its tip end portion, in which the tip end portion extends to an inside of the process chamber in an extended state extending in a longitudinal direction, and is accommodated inside the transfer apparatus in a shrunk state; and

feeding means for feeding this tape in the longitudinal direction.

2. A vacuum apparatus according to claim 1, wherein the tape is a tape made of an elastic material having a curved cross section.

3. A vacuum apparatus according to claim 1, wherein the feeding means is a driving pulley.

4. A vacuum apparatus according to claim 1, wherein a pair of tapes is symmetrically provided, and both tip end portions of this pair of tapes are provided with one work-piece holder hand.

5. A vacuum apparatus according to claim 1, wherein a tape accommodating cylinder is provided downward the transfer chamber, and the rear end side of the tape is accommodated inside this case.

6. A vacuum apparatus according to claim 5, wherein the feeding means comprises:

a driven magnet attached to the rear end side of the tape; and

a driving magnet movably provided along the tape accommodating cylinder in the outside of the tape accommodating cylinder; and wherein

by making the driven magnet follow movement of the driving magnet, the tape is fed.

7. A vacuum apparatus according to claim 1, wherein the work-piece holder hand is attached to a tip member of a linear guide portion attached to a base of the transfer apparatus.

8. A vacuum apparatus according to claim 7, wherein the linear guide portion has a plurality of slide portions between the base and the tip member.

9. A vacuum apparatus according to claim 1, wherein a plurality of the work-piece holder hands are provided in the transfer apparatus, and this plurality of work-piece holder hands are disposed in an upper side and a lower side thereof.

10. A transfer apparatus comprising:

a tape provided with a work-piece holder hand in its tip end portion, and

feeding means for sliding this tape in a longitudinal direction.

11. A transfer apparatus according to claim 10, wherein the tape is a tape made of an elastic material having a curved cross section.

12. A transfer apparatus according to claim 10, wherein the feeding means is a driving pulley.

13. A transfer apparatus according to claim 10, wherein a pair of tapes are symmetrically provided, and both tip end portions of this pair of tapes are provided with one work-piece holder hand.

14. A transfer apparatus according to claim 10, wherein a tape accommodating cylinder is extendedly provided in upward and downward directions, and the rear end side of the tape is accommodated inside this case.

15. A transfer apparatus according to claim 13, wherein: the feeding means has a driven magnet attached to the rear end side of the tape and a driving magnet provided in the outside of the tape accommodating cylinder; and the driving magnet moves along the tape accommodating cylinder, and the driven magnet follows the movement and moves, to thereby feed the tape.

16. A transfer apparatus according to claim 10, wherein the work-piece holder hand is attached to a tip member of a linear guide portion attached to a base.

17. A transfer apparatus according to claim 15, wherein the linear guide portion has a plurality of slide portions between the base and the tip member.

18. A transfer apparatus according to claim 10, wherein a plurality of pairs of the work-piece holder hands and the feeding means thereof are provided, and this plurality of work-piece holder hands are disposed in an upper side and a lower side thereof.

19. A vacuum apparatus comprising:

a process chamber for processing for a work-piece; and

a transfer chamber connected to the process chamber via a gate valve for accommodating a transfer apparatus to an inside thereof, wherein

the transfer apparatus comprises:

a linear guide which is provided with a work-piece holder hand in its tip end portion, and in which the tip end portion extends to an inside of the process chamber in an extended state extending in a longitudinal direction, and is accommodated inside the transfer apparatus in a shrunk state;

a tape, a tip end side of which is attached to the tip end portion of the linear guide, for extending and shrinking the linear guide using its movement;

a tape accommodating cylinder provided downward the transfer chamber for accommodating a rear end side of the tape; and

feeding means having a driven magnet attached to the rear end side of the tape and a driving magnet provided movably along the tape accommodating cylinder in the outside of the tape

accommodating cylinder, in which by making the driven magnet follow movement of the driving magnet, the tape is moved in the longitudinal direction.

20. A vacuum apparatus according to claim 19, wherein the transfer apparatus is provided with a plurality of the holder hands for the work-piece, and this plurality of holder hands for the work-piece are disposed in an upper side and a lower side thereof.